AWS Certified Solutions Architect Professional (SAP-C02)

Architecting Resilient, Scalable, and Secure Multi-Account Enterprise Cloud Environments

SENIOR AWS SOLUTIONS ARCHITECT & TECHNICAL TRAINER

Enterprise Architecture Principles

Core foundational strategies for designing mission-critical AWS workloads

Scalability vs High Availability

Scalability & Elasticity

Dynamic Capacity Expansion: Design workloads to scale compute and database resources seamlessly based on real-time application demands.

Stateless Architecture: Offload user session states to ElastiCache or DynamoDB to allow instances to scale horizontally without friction.

High Availability & Resiliency

Eliminate Single Points of Failure: Distribute workloads across multiple isolated Availability Zones within an AWS Region.

Automated Failover: Utilize Application Load Balancers and RDS Multi-AZ deployments for instant self-healing and zero data loss.

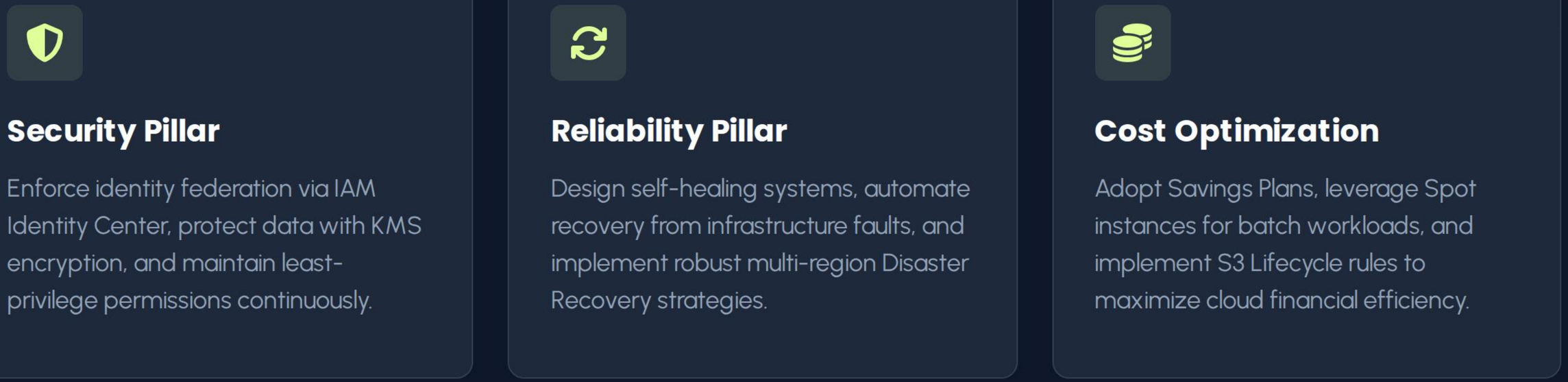
Multi-Account AWS Strategy

Governance & Isolation

Operating an enterprise in a single AWS account increases blast radius and operational risk. AWS Organizations enables multi-account management at scale.

Implement Service Control Policies (SCPs) to enforce security guardrails across Organizational Units (OUs) without impacting developer agility.

AWS Well-Architected Framework



Security Pillar

Enforce identity federation via IAM Identity Center, protect data with KMS encryption, and maintain least-privilege permissions continuously.

Reliability Pillar

Design self-healing systems, automate recovery from infrastructure faults, and implement robust multi-region Disaster Recovery strategies.

Cost Optimization

Adopt Savings Plans, leverage Spot instances for batch workloads, and implement S3 Lifecycle rules to maximize cloud financial efficiency.

Targeting 99.999% Availability

99.999%

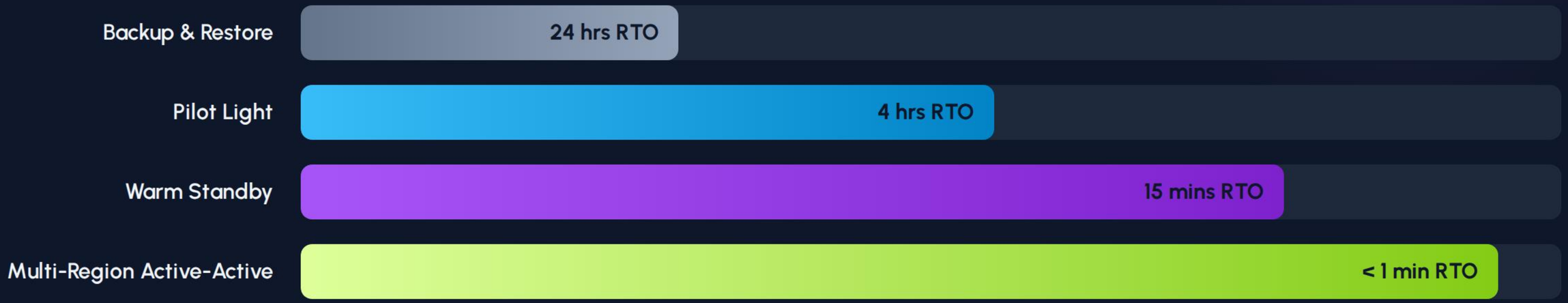
Uptime Architecture SLA

Architecting for High Availability

Achieving five-nines uptime requires less than 5.26 minutes of unplanned downtime per year. This mandates automated cross-region active-active architectures, Amazon Route 53 health checks, and global database tables.

By decoupling frontend services with SQS queues and building event-driven serverless backends, enterprise applications remain unaffected by localized infrastructure outages.

Disaster Recovery Strategy Comparison



Balancing Recovery Time Objective (RTO) against cost: Active-Active provides near-zero downtime while Pilot Light minimizes idle secondary resource costs.

Enterprise Compute Options

AWS Compute Engine	Control Plane	Management Overhead	Ideal Enterprise Workload
Amazon EC2	Self-Managed Virtual Machine	High (OS patching & scaling)	Legacy apps & monoliths
Amazon ECS / EKS	Managed Container Service	Medium (Node management)	Microservices & Kubernetes
AWS Fargate	Serverless Container Compute	Low (No server instances)	Stateless containerized apps
AWS Lambda	Event-Driven Serverless	Zero (Full abstraction)	Real-time APIs & data pipelines

SAP-C02 Certification Roadmap

Phase 1: Foundations

Review AWS Associate concepts and master Well-Architected whitepapers.

Phase 2: Deep Dive

Study multi-account governance, Transit Gateway, and hybrid networking.

Phase 3: Hands-On

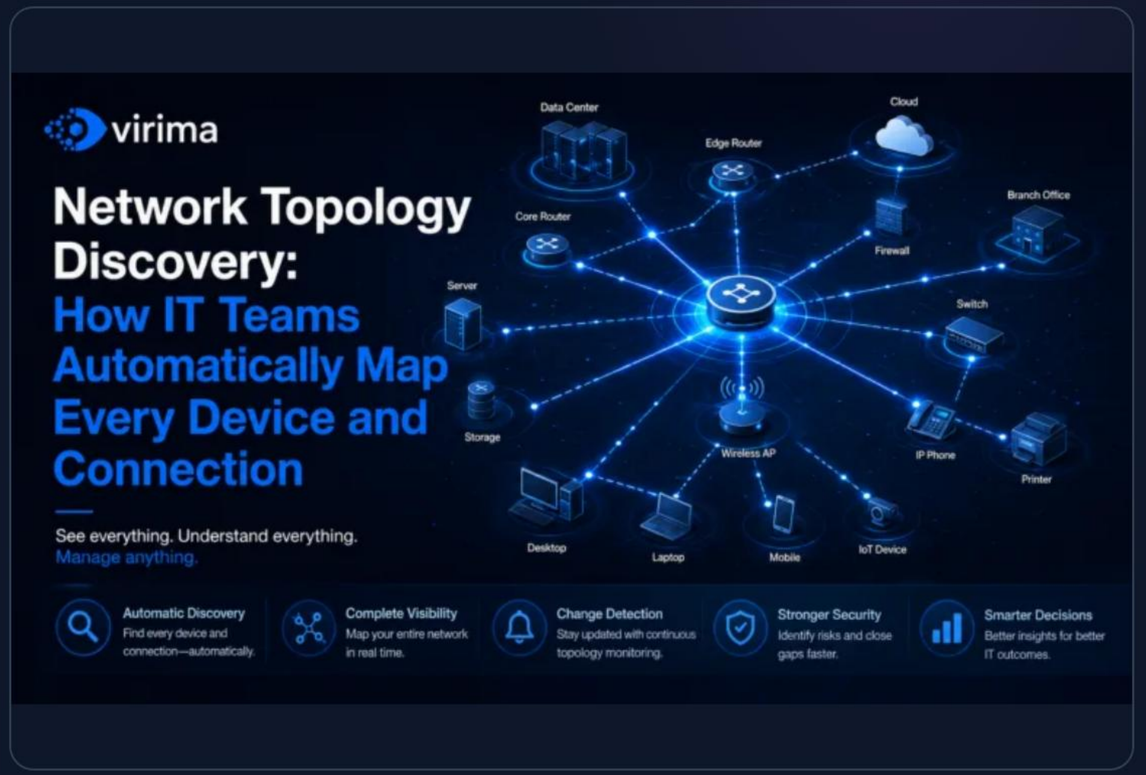
Build multi-region DR, CDK templates, and Organizations guardrails.

Phase 4: Practice

Complete scenario-based practice exams and refine time management.

Hybrid Cloud & AWS Networking

- **AWS Transit Gateway:** Acts as a central cloud router connecting hundreds of VPCs and on-premises data centers.
- **AWS Direct Connect:** Dedicated private physical connections delivering ultra-low latency and consistent network throughput.
- **Route 53 Resolver:** Enables seamless hybrid DNS resolution across corporate Active Directory and AWS private hosted zones.
- **Security & Encrypted Tunnels:** Combine Direct Connect with IPsec VPN for high-speed, encrypted transit.



Architectural Philosophy

"Everything fails, all the time. Design systems that gracefully recover rather than hoping hardware won't break."

— Dr. Werner Vogels, CTO of Amazon.com

Questions & Answers

Master enterprise cloud design with continuous learning and hands-on practice.

Learn more at: www.devopsschool.com/certification/aws-certified-solution-architect-professional.html

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